RESPONSES TO
U.S. DEPARTMENT OF ENERGY
COMMENTS

DRAFT PHASE I RFI/RI WORK PLAN
OPERABLE UNIT 15 - INSIDE BUILDING CLOSURES
ROCKY FLATS PLANT

MAY 1992

General Response

The scope of the RFI/RI for OU15, as presented in the draft Work Plan, was defined by the Colorado Department of Health (CDH) and the Environmental Protection Agency (EPA) during scoping meetings held on April 20, 1992 and April 28, 1992. These scoping meetings addressed interpretation of the IAG with respect to OU15, the scope of the RFI/RI Work Plan, and the relevance of the existing Closure Plans.

In a letter dated April 29, 1992 regarding integration of investigation and closure processes for OU 15, the agencies stated the "closure plans contain a source characterization section while RFI/RI Work Plan contain Field Sampling Plans (FSP). The Division and EPA agree that closure sampling and FSP sampling should run concurrently and be identical in scope." Consequently, the source characterization sections of the closure plans were incorporated into the field sampling plan (FSP) presented in the May 1992 Work Plan. Additional source characterization activities were included in the FSP if the source characterization section for the closure plan appeared inadequate for characterizing the unit.

On August 6, 1992, CDH and EPA revised their recommendation regarding integration of the RFI/RI with Colorado Hazardous Waste Act (CHWA) closure requirements. In addition, CDH and EPA comments on the draft document indicate a new scope to the Baseline Risk Assessment, OU15 Field Sampling Plan, and the use of ARARs for OU15.

Because the RFI/RI process for OU15 is being continuously redefined, some comments made by DOE on the May 1992 Work Plan may no longer directly relate to the content of the revised work plan dated October 1992.

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General Comments

GC-1: Defining OU15 as stored drums within buildings and limiting sampling to drums and swipes of floor surfaces severely limits likelihood that any previous spills will be identified. Only radioactive materials not covered by epoxy paint are reliably detected by screening monitors. Collection of metals or volatile organics from pores of the floor, which may have been subsequently covered with paint or epoxy paint, with a water moistened filter is not likely to yield good recovery.

Therefore, the question of contamination of the floor material, e.g., concrete, may not be answered. In fact, this work plan states (Section 7.2) that one of the reasons for not collecting samples of floor substrate is to prevent release of radioactivity from underneath the epoxy paint. It is not clear whether any study of soils under the buildings or drains (and collection systems from these buildings) will be conducted and if so, how the results will be integrated. It was stated that rinsates from the uranium chip roaster were disposed of in the process drain. Some discussion should be made as to which OU this drain is connected with.

Since the floor materials and drains will not be sampled, it is not likely that contaminants will be detected, although they may exist.

Response: CDH and EPA guidance indicate that the focus of the RFI/RI for OU15 is to assess the risks associated with human exposure to IHSS associated contaminants. DOE RFP believes that site characterization should not include destructive sampling because of the potential for penetrating radiologically contaminated surfaces and increasing the risk of expose relative to the current conditions.

DOE RFP considers destructive sampling to be appropriate during decontamination and decommissioning (D&D) of the buildings. Likewise, DOE RFP considers drains within the buildings and under building contamination to be a D&D activity.

GC-2: Section 5.7.1 identifies potential technologies applicable to remediation of soils, wastes, surface water, sediments, and ground water. However, this work plan is not designed to identify contamination in most of these media since they are not samples. The media samples are the drums and the top surface

of the floors in storage rooms. It is not clear what the potential remedial technologies are for these drums and building materials.

Response: Section 5.7.1 has been revised to indicate that remedial activities related to soils, wastes, surface water, sediments and ground water will be identified only if the staged investigation indicates that IHSS-associated contaminants have impacted environmental media outside of the buildings. As directed by CDH and EPA, remedial technologies within the buildings may include drum removal and steam cleaning followed by sampling of steam rinsate to verify that the units meet Clean Closure Performance Standards (Section 265.111 of the Colorado Hazardous Waste Act). These activities are equivalent to RCRA closure plan activities. Final remediation of all building materials would occur during D&D.

GC-3: The terms "swipe" samples and "wipe" samples are both used in the document. Please revise for consistency or define the differences.

Response: As requested, the text has been revised for consistency.

GC-4: There are several statements in Section 2.2 that epoxy paint provides secondary containment. However, it was not clear whether the type of epoxy was compatible with the types of chemicals stored. Please explain if this unit is in compliance with the RCRA Part B permit.

Response: As stated in the RCRA Part B permit, the epoxy paint complies with the RCRA regulatory requirement for secondary containment.

GC-5: The preservation requirements listed on Table 7-3 are not appropriate for the samples which will be collected during this investigation. Appropriate preservation requirements as well as appropriate container types and sizes should be included in the document.

Response: Based on recent guidance provided by CDH and EPA, steam cleaning of the IHSSs and analysis of rinsate has been included in the Field Sampling Plan for OU15. Therefore, the preservation requirements listed in Table 7-3 are appropriate for the samples which will be collected during the investigation.

GC-6: Field changes and their appropriate documentation should be discussed.

Response: Field changes and their documentation are addressed in Section 10 by reference to the QAPjP for RFP.

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Specific Comments

SC-1: Section 1.3.3.3, p. 1-11, second paragraph: It would be helpful to include a representative wind rose as a figure in this section. This could probably be obtained from the local meteorological service.

Response: Because these IHSSs are located within buildings and the potential for environmental contamination is believed by DOE, RFP, EG&G, EPA, and CDH to be minimal, a wind rose is not considered to be necessary for site characterization.

SC-2: Section 1.3.3.8, p. 1-21, second paragraph: Please provide a source for the potentiometric data.

Response: A reference has been added as requested.

SC-3: Section 2, p. 2-4, last paragraph: It appears that "carbon dioxide" may actually be a misprint and could be carbon disulfide instead. If so, please make the change throughout the document.

Response: Information presented in Rockwell International (1988a) indicates that the drummed wastes contained carbon dioxide. Although this seems unlikely, reported analytical information cannot be altered.

SC-4: Section 2.2.4, p. 2-9: The present status of the uranium chip roaster should be given. Also, a figure of the described roaster would be helpful for visualization. Values for the external and internal surface area should be included.

Response: The Original Uranium Chip Roaster is currently being used to process non-hazardous wastes. A figure illustrating the configuration of the unit was not available for preparation of this work plan. Values for external and internal surface areas have been included in the October 1992 version of the work plan.

SC-5: Section 2.2.4, pp. 2-9 and 2-10: If there were other accidental releases documented for this or other IHSSs, then they should be reported in this section. No mention is given on p. 2-10 as to <u>what happened to the contaminated water that was vacuumed</u>?

Response: No other information documenting any other release was found. No information was found regarding the disposal of contaminated water.

SC-6: Section 2.2.5, p. 2-10, first paragraph: Please clarify if the aisle space is in compliance with the RCRA Part B permit application.

Response: It is not within the scope of this document to address compliance of these units with RCRA regulations or the RCRA Part B permit application.

SC-7: Section 2.2.6, p. 2-12: The present status of the cyanide treatment laboratory should be given.

Response: The text has been revised to indicate that the Cyanide Bench Scale Treatment unit is no longer operational.

SC-8: Section 2.2.6, p. 2-13, first paragraph: It is believed that cyanates still represent a hazard to human health and the environment. In addition, cyanates can be slowly converted back to cyanides, especially when in contact with carbonaceous materials. It is suggested that the EPA Alternative Treatment Technology Information Center (ATTIC) Database be contacted for additional information.

Response: It is not within the scope of the work plan to evaluate whether cyanate represents a hazard to human health and the environment. As written, the text is correct in stating that cyanate resulting from the neutralization process is not a listed hazardous material. It is very unlikely that cyanate contacted carbonaceous material since the material was contained in the 4-liter polyethylene bottles and within the laboratory table structure. Because of the small volume of liquid treated and the existence of containment structures, it is unlikely that wastes were released outside of the building and contacted carbonaceous materials. Therefore, conversion of cyanate to cyanide is expected to be minimal.

SC-9: Figure 2-2: The symbols used on the figure should be explained in the legend. Also, the title should be changed since fill and alluvium are also illustrated in addition to bedrock.

Response: The document has been modified as requested.

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SC-10: Section 2.3.3.1, pp. 2-23 to 2-24: The retention ponds are not shown on Figure 2-4 as stated in the text.

Response: The document has been modified as requested.

SC-11: Section 3, p. 3-1: It is not clear if the definition of federal and state standards as Benchmarks rather than ARARs is a legal/political issue for this site. These standards are typically used as ARARs, but they are not necessarily site cleanup standards which are based on risk assessment at site or receptor.

Response: In accordance with DOE RFP guidance, the numerical criteria presented in Tables 3-1 to 3-4 are called Benchmarks.

SC-12: Section 4.1.2.2, p. 4-4: It appears that the data discussed have been useful (e.g., the data were used to characterize potential contaminants). It does not seem cost effective to attempt to formally validate the existing data when data collected during the investigation will either confirm or negate the data anyway. Instead, the data could be evaluated for appropriateness. It is important to note that the EPA does not require that data used for site characterization be formally validated. Typically, data collected for site characterization do not include the deliverables necessary for a formal validation.

Response: Although invalidated, the data have been used in the work plan to qualitatively characterize contamination at the OU15 IHSSs. No effort is presently being made to validate the data.

SC-13: Section 4.2.2, P. 4-10: The Contract Laboratory Program (CLP) hazardous substance list (HSL) has been replaced with the target compound list (TCL) and the target analyte list (TAL).

Response: The document has been modified as requested.

SC-14: Section 5.8, p. 5-14: Further information for conducting treatability studies may be found in the EPA's "Guide for Conducting Treatability Studies Under CERCLA: Interim Final," EPA/540/2-89/058.

Response: Section 5.8 has been prepared using guidance provided in EPA's "Guide for Conducting Treatability Studies Under CERCLA: Interim Final," EPA/540/2-89/058.

SC-15: Section 7.2, p. 7-4: This section states that analytical data for characterization of the drummed wastes have not been validated and have not been used. It would be helpful to state whether or not the data confirm the known contents of the drums. It is important to note that the EPA does not require data used for site characterization to be formally validated. These data typically do not include the deliverables necessary for validation as defined by the EPA. It is not clear whether or not the existing data have been supported by the historical information. If so, a statement in that regard would help support the stated analytical rationale.

Response: As stated in Section 7.2, p. 7-4, "The analytical data for characterization of the drummed wastes in OU15 IHSSs (Section 2.2) have not been validated. Although these data are considered qualitative, they *have* been considered in the design of the FSP." (emphasis added)

SC-16: Section 7.3.2, p. 7-11: Samples should also be collected from areas where screening instruments indicate contamination. Also, the entire surface of floor in the storage rooms may need to be sampled. If so, a statistical grid may be satisfactory. Swiping 1 m^2 with one filter may not be practical due to shredding.

Response: The field sampling plan has been rewritten to indicate that a 100 cm^2 swipe sample will be obtained within a square meter area. The number of radiological sampling/survey locations proposed for the IHSSs exceeds industry norms for evaluating occupational exposure to radiological contamination. Steam cleaning and rinsate analysis will be performed up to three times, as necessary, to ensure that the units meet the (risk based) Clean Closure Performance Standards. Therefore, the frequency of sampling is considered to be more than adequate to meet the objectives of the OU15 RFI/RI.

SC-17: Section 7.3.2, p. 7-12, first paragraph: A method for obtaining background levels for nonradioactive contaminants of concern for the wipe samples needs to be addressed.

Response: Background is typically determined by measuring the activity of an unused swipe.

SC-18: Section 7.3.3, p. 7-12: The number of samples to be collected per drum should be stated.

Response: In accordance with recent guidance from CDH and EPA, sampling and analysis of drums is not required for characterization of OU15 IHSS. Therefore, drum sampling will not be included in the final version of this document.

SC-19: Section 7.3.3, p. 7-13, second paragraph: It is not clear if the plan is to really sample closed containers with restricted openings in four equal areas.

Response: See response to Comment No. 18.

SC-20: Section 7.3.3, p. 7-15, second paragraph: The rationale for sampling of the polyethylene bottles which contain liquid should be stated. It is not clear whether the resultant data will be used for site contaminant characterization or disposal purposes.

Response: Recent information indicates that the polyethylene bottles used to store cyanate are no longer present at the IHSS.

SC-21: Section 7.3.3, p. 7-15, fourth paragraph: Please define what kind of filter is to be used. Also, some discussion of recovery for compounds of interest should be provided.

Response: Swipe samples will be performed in accordance with Environmental Management Radiological Guidelines (EMRG) OP 3.1, Performance of Surface Contamination Monitoring, which specifies the type of material used for swipe sampling. Swipe sampling will not be used to determine concentrations of other metals and VOCs. These constituents will be determined by analyzing steam rinsate samples.

SC-22: Section 7.3.3, p. 7-17, second paragraph: Representative concentrations of depleted uranium on the surfaces should also be obtained for the interior and exterior surfaces.

Response: The document has been revised to include swipe sampling of the interior and exterior surfaces of the Original Uranium Chip Roaster.

SC-23: Section 7.4, p. 7-18: The characters for wipe and drum samples should be given. Currently, only soil boring and surface soil characters are given. Neither of these types of samples will be collected during this investigation. Designations for media that will be sampled should be used.

Response: Designations for wipe and drum samples are presently being determined by EG&G RFEDS database personnel and will be used to identify the types of samples collected during this investigation.

SC-24: Section 7.5, p. 7-21: Management of field data, such as field screening results, forms and field logbooks should be discussed.

Response: Management of the hardcopies of field data (e.g., field screening results, forms, and field logbooks) specified in the EMD Operating Procedures referenced the OU15 Work Plan. Thus management of the hardcopies of field data is addressed through reference.

SC-25: Section 7.5, p. 7-22: The procedure to be used for duplicate sample collection should be described. It is not clear whether the samples will be co-located or adjacent to the original. Also, a procedure for collection of the MS/MSD samples should be included. Currently, it appears that not enough volume of sample will be collected for their analyses.

Response: Section 7.0 has been modified to explain that a 100 cm^2 swipe sample will be obtained within a square meter area, in accordance with EMRG OP 3.1 Performance of Surface Contamination Monitoring. This operating procedure addresses the necessary sample volume.

SC-26: Section 7.5, p. 7-23: It appears that no trip blanks will be collected since the document states that trip blanks will only accompany water samples. This should be re-evaluated since no water samples will be collected. Trip blanks are very important for assessment of cross-contamination between volatile organic samples.

Response: The revised document now includes sampling of steam rinsate based on guidance provided by the agencies. Since water samples are now a part of the field sampling program, trip blanks are appropriate for QC purposes.

SC-27: Section 7.7, p. 7-23: The types of air monitoring to be performed should be discussed.

Response: Air monitoring will not be performed. Activities within the building that may affect the quality of data during sampling will be curtailed during implementation of the FSP.

SC-28: Table 7-1: The footnote at the bottom of the Table does not accurately reflect CLP requirements. It should be noted that CLP requires that all method or instrument detection limits must at least meet the contract required detection limits. Data resulting from analyses using higher detection limits may only be used under the circumstances specified in the September 1991 CLP Statement of Work.

Response: The footnote indicates the metals (and associated detection limits) not listed on the TAL metals list.

SC-29: Table 7-2: The fourth column heading should indicate both Level IV and V data.

Response: The table has been modified as requested.

SC-30: Tables 7-3 and 7-4: Please clarify holding time of 7 days and 14 days for volatile organic compounds.

Response: Volatile organic compound samples cooled to 4°C have a holding time of 7 days. If, in addition to cooling, the sample is preserved with hydrochloric acid to a pH<2, the holding time is 14 days.

SC-31: Section 8.1, p. 8-2, third paragraph: Most of the media listed are not to be sampled. Therefore, it is not clear how the presence of contamination will be determined, or integrated with other information. Identification of potential exposure pathways is therefore difficult.

Response: In accordance with agency guidance, once Clean Closure Performance Standards have been met, a Human Health Risk Assessment need not be performed. In the event that radiological contamination remains, a Radiological Risk Assessment will be performed to determine occupational risks to RFP workers and visitors. Based on this recent guidance, the entire Section 8.0 has been rewritten. Therefore, this comment is no longer relevant to the revised version of this document.

SC-32: Section 8.2.2, p. 8-8, first sentence: The word "cannot" should be changed to "can."

Response: See response to comment SC-31.

SC-33: Section 8.4, p. 8-22, first paragraph: One additional source of toxicity data for contaminants of concern is the Alternative Treatment Technology Information Center (ATTIC) Database which may be accessed through the system operator at 301-670-6294.

Response: See response to comment SC-31.

SC-34 : Section 10.3.7.1, p. 10-8: According to earlier sections of the document, equipment rinsate blanks will not be collected because there will be no sampling equipment except glass tubes which may be disposed of in the drums sampled. Please clarify.

Response: See response to comment SC-26.

SC-35: Page ix-List of Acronyms: The HSL appears twice in this list.

Response: The document has been modified as requested.

SC-36: Page 2-2, Sec. 2.1: A more accurate description of the interim status closure for these events might be: "Closure Plans for seven interim status closures were submitted to CDH in 1986. Five years later, after six of these closures were incorporated into the final IAG as OU15 in January, 1991, the 1986 closure plans were outdated."

Response: The document has been modified as requested.

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SC-37 Page 2-8, Sec. 2.2.4: According to personnel in building 447, the uranium chip roaster has been dismantled, steam cleaned, swipe tested and put back into service burning nonhazardous uranium chips. Apparently, the swipe test results have been lost. Swipe tests on and inside the chip roaster and the room should confirm this and justify RCRA interim status clean closure on the unit.

Response: EG&G and DOE concur. Information obtained during the Phase I RFI/RI for OU15 will confirm the results of previous cleanup activities and justify RCRA clean closure.

SC-38 Figure 2-1: Remove the operable unit boundary line from the map, and the solid operable unit boundary and line definition in the legend.

Response: The figure has been modified as requested.

SC-39 Page 4-10, Sec. 4.2.4, last sentence: The sentence should read "If contaminant concentration in the steam..."

Response: The document has been modified as requested.

SC-40 Part 7: Please clarify that samples will be taken on the inside surfaces of the cyanide hood and the uranium chip roaster. Also, clarification is needed when presenting areas to be swipe tested (including analytical methods for swipe samples) and areas to be rinsate sampled. The use of the term "steam sampling' may help clarify that steam cleaning is not a response to swipe sample analysis results, but a method of sampling for separate analytes. This point must be made clear in the final document.

Response: This section has been rewritten to clearly indicate (1) sampling of the interior and exterior surfaces of the cyanide hood and uranium chip roaster, (2) the areas to be sampled for analysis of steam rinsate verses radiological phonometer, and (3) the purpose of steam sampling.

SC-41 Page 7-11, first sentence: The sentence should read "If contaminant concentration in the steam..."

Response: The document has been modified as requested.

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SC-42 Part 7-23, Sec. 7.6, second paragraph: Please clarify the number of duplicate samples to be taken.

Response: The frequency for collection of duplicate samples is presented in Figure 7-5. Duplicates will be collected at a minimum of 1 in 10 or at once per day of sampling, whichever is more frequent.

SC-43 Part 10: Table 10-1 and Figure 10-1 are unreadable.

Response: Legible copies of Table 10-1 and Figure 10-1 have been included in the revised version of the document.